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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
TODD, GREGORY G	
ART UNIT	**PAPER NUMBER**
2157	

DATE MAILED: 01/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/253,250	BASKEY ET AL.	
	Examiner	Art Unit	
	Gregory G Todd	2157	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 September 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. This is a sixth office action in response to applicant's amendment filed, 20 September 2004, of application filed, with the above serial number, on 19 February 1999 in which claims 1, 12, and 14 have been amended. Claims 1-22 are therefore pending in the application.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-2, 4, 6, 10-13, 14-15, 17, and 19-20 are rejected under 35 U.S.C. 102(e) as being anticipated by Caldarale et al (hereinafter "Caldarale", 5,659,794).

As per Claim 1, Caldarale discloses an apparatus for providing direct processing access between application servers and at least one application user wherein Caldarale discloses:

a main storage capable of establishing processing communication with a plurality of application servers (feature of Fig. 1 (24); at least col. 6, lines 21-27, 9-12);

said main storage containing a plurality of queues corresponding to said plurality of application servers for retrieval and storage of incoming and outgoing data without causing interrupts in any running programs, said queues for retrieving data from and sending data to said application servers (feature of Fig. 2 (59 &60)) (at least col. 8, lines 15-27);

an interface element capable of establishing processing communication between said plurality of queues and at least one application user (NIOP) (feature of Fig. 1 (10 & 46 & 16));

an interrogator (network I/O microcode controlling queue bank) operating independent of any application server for examining said plurality of queues to transfer appropriate requests, responses and data between said application servers and said at least one application user (at least col. 7, line 44 - col. 8, line 25).

As per Claim 2.

interface element further comprises of a connector interface element (channel/peripheral interfaces) (at least col. 6, lines 39-41)) and a network interface element (network interface) (features of Fig. 1 (10 26)).

As per Claim 4.

connector interface element comprises a plurality of processors (at least one NIOP / multiple NIOPs) (at least col. 6, lines 32-46).

As per Claim 6.

main storage can be in processing communication with a plurality of network elements and servers (at least col. 6, lines 21-27, 9-12; Fig. 1).

As per Claim 10.

network interface element further comprises an I/O device adapter (NIOP contains...Channel/Network I/O microcode...Channel microcode utilizes CA...multiple adapters in NIOP, network channels) (at least col. 7, lines 13-19, 40-41), at least one more processor (network interface controller) (at least col. 7, lines 42-46) and a local storage area (NIOP message buffers made up of queue banks) (at least col. 7 line 63 - col. 8 line 2).

As per Claim 11.

Network Interface Element is capable of connecting to one or more individual application users (feature of Fig. 1).

As per Claim 12.

Interface Element (NIOP) performs computing network environment functions establishing network communications between said application servers and said at least one application user (at least col. 7, lines 50-57).

As per Claim 13.

Interface Element (NIOP) performs control unit (I/O device controlling) functions (buffering and queuing) (at least col. 7, lines 50-57).

As per Claim 14, Caldarale discloses an apparatus for providing direct processing access between a main storage, capable of connecting to a plurality of application servers and an interface element with at least one adapter capable of establishing processing communication with at least one application user, and adapter wherein Caldarale discloses:

a plurality of queues in said main storage for access by corresponding ones of said plurality of application servers (at least Fig. 2; col. 8, lines 15-27);

data receivers in each of the application servers for processing data (servers implicitly process received data) (at least col. 6, lines 20-31);

said queues for retrieval from, and storage to, any of said application servers of incoming and outgoing data while providing continuous running of programs without interruptions (feature of Fig. 2);

an updator for changing the status of network computing system every time new data is received, deleted or modified (at least col. 3, lines 55-65; col. 9, lines 29-31);

an interrogator operating independent of any application server for interrogating said plurality of queues in main storage simultaneously to process any received data or requests such that data or requests may be received from more than one application server (at least col. 7, line 44 - col. 8, line 25);

a determinator for interrogation and routing of data to appropriate application user to which data has been forwarded (transferring to particular network interface based on network interface ID and address) (at least col. 17, lines 21-51).

As per Claim 15.

interface element further comprises of a connector interface element (channel/peripheral interfaces) (at least col. 6, lines 39-41)) and a network interface element (network interface) (features of Fig. 1 (10 26)).

As per Claim 17.

main storage can be in processing communication with a plurality of network elements and servers (at least col. 6, lines 21-27, 9-12; Fig. 1).

As per Claim 19.

network interface element further comprises an I/O device adapter (NIOP contains...Channel/Network I/O Microcode...Channel microcode utilizes CA...multiple adapters in NIOP, network channels) (at least col. 7, lines 13-19, 40-41), at least one more processor (network interface controller) (at least col. 7, lines 42-46) and a local storage area (NIOP message buffers made up of queue banks) (at least col. 7 line 63 - col. 8 line 2).

As per Claim 20.

Network Interface Element is capable of connecting to one or more individual application users (feature of Fig. 1).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Caldarale in view of Carbillet (hereinafter "Carbillet", 6,256,696).

The combination fails to disclose using his plurality of processors for specifically redundant capabilities. However, the use and advantages for using such a protocol is

well known to one skilled in the art at the time the invention was made as evidenced by the teachings of Carbillet. Carbillet discloses using a plurality of processors for the purpose of redundance in communication information processing systems (at least col. 1, lines 19-28). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the use of Carbillet's processor redundancy into The combination's multiple processors so as to protect the system from failure in the case of one processor failing for any reason, the other processor would go on to complete the information processing, especially important for critical informations systems.

6. Claims 7 & 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Caldarale in view of Brandt et al (hereinafter "Brandt", 6,081,834).

Although the combination suggests using a specific network protocol (at least Caldarale col. 11, lines 53-55), Caldarale fails to explicitly disclose using a TCP/IP oriented web-server. However, the use and advantages for having such a protocol implemented on the network is well known to one skilled in the art at the time the invention was made as evidenced by the teachings of Brandt (at least col. 12, lines 1-7; col. 10, lines 51-55). Brandt teaches a network provider (web server) using a TCP/IP protocol. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have a TCP/IP oriented web-server on the combination's network because this would enhance the expendability and compatibility of the combination's network since it would allow for the incorporation of new and future networking protocol implementations for existing network equipment and users.

7. Claims 3 & 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Caldarale in view of Casper et al (hereinafter "Casper", 6,192,482).

The combination fails to disclose the connector interface element is in processing communication with main storage via a Self-Timed Interface or an STI bus. However, the use and advantages for using such an interface is well known to one skilled in the art at the time the invention was made as evidenced by the teachings of Casper (at least abstract; col. 7, lines 30-36). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the use of a STI bus into the combination's system because the STI interface would offer more compatible interface connectivity solutions when different equipment vendors are involved, such as a heterogeneous system environment and is additionally operated at a faster clock speed.

8. Claims 9, 18, 21 & 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Caldarale in view of Leger et al (hereinafter "Leger", 5,765,023).

9. As per Claims 9 and 18.

Although Caldarale suggests using an ISA interface between the interface elements (at least col. 6, lines 32-35), Caldarale and the combination fail to disclose the connector interface element and network interface element being in processing communication with one another via a PCI bus. However, the use and advantages for using such an interface is well known to one skilled in the art at the time the invention was made as evidenced by the teachings of Leger (at least col. 3, lines 35-42). Therefore, it would have been obvious to one of ordinary skill in the art at the time the

invention was made to implement Leger's use of a PCI bus as opposed to Caldarale's ISA bus because a PCI bus is a more widely-used interface and is additionally operated at a faster clock speed.

10. As per Claim 21.

The combination fails to disclose the connector interface element being in processing communication with main storage via a direct access memory I/O device. However, the use and advantages for using DMA between memory and an interface is well known to one skilled in the art at the time the invention was made as evidenced by the teachings of Leger (at least Leger abstract). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the use of using DMA between storage devices and I/O interfaces into the combination's system because this would enhance the speed and processing power of the other processors, by offloading this task to a DMA I/O device to move the data from one peripheral to the main memory for faster computations.

11. As per Claim 22.

The combination fails to disclose the connector interface element and network interface element being in processing communication with one another via a direct access memory I/O device. However, the use and advantages for using DMA between memory of different components (such as a peripheral and NIC) within a system is well known to one skilled in the art at the time the invention was made as evidenced by the teachings of Leger (at least Leger abstract). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the use

of using DMA between I/O interfaces into the combination's system because this would enhance the speed and processing power of the other processors, by offloading this task to a DMA I/O device to move the data to/from one peripheral from/to another component such as a NIC to be transferred over a network for faster network data transmission.

Response to Arguments

12. Applicant's arguments filed 20 September 2004 have been fully considered but they are not persuasive.

Applicants argue, substantially, that a) Caldarale fails to teach or suggest the main storage unit as containing multiple queues, and that such queues may be set up for more than one application server; and b) contrary to the present invention, Caldarale and Provino are interrupt driven.

In response to a); Caldarale is not relied upon as having a main storage unit containing more than one image. Further, Caldarale specifically states Fig. 1 as only showing one server being connected to the main storage unit, but states that more servers (see col. 6, lines 15-31; from several systems to hundreds of systems) and thus queues for each system are also connected to the main storage unit. Thus, while Caldarale only shows one application server in the figures, he clearly states a plurality of such servers would be connected to the main storage. Further, for each application server there is an input, output and control queues and thus multiple queues for each application server.

In response to b); Fig. 2 of Caldarale discloses the input and output queues communicating between the network I/O Code and communications program and does not disclose any interrupts nor any interruptions of running programs. The wording of the claims nearly suggests other programs not being interrupted and stalled from the queueing mechanism ("without causing interrupts in any running programs"), and nothing about not using an interrupt-driven operating system, for example. The idea of using a queue is, in fact, so that one job can be done when there is time to have it be done and other jobs are given a first in first out priority to be done as soon as they can without the processor interrupting another job; otherwise, for example, eight jobs being sent to the main storage at one time, if without a queue, all eight jobs would be acted on simultaneously and thus interrupt each other, and with a queue each job is acted on separately and do not interrupt each other. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See In re Van Geuns, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Further, Provino is not relied upon for not causing interrupts in any running programs. Provino is clearly relied upon simply as disclosing each application server in a separate image provided for virtual system in the main storage.

Conclusion

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Previously cited Chong et al, Baskey et al ('350 & 324), Downling et al, Barr et al, Mattaway et al, Jindal et al, Kailash, Bahls et al, Freund et al, Mukherjee et al, Brandt et al (6,021,430), Garcia, Bartek et al, Sharma et al, Chin et al, and Kawaguchi et al are cited for disclosing pertinent information related to the claimed invention. Applicants are requested to consider the prior art reference for relevant teachings when responding to this office action.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregory G Todd whose telephone number is (571)272-4011. The examiner can normally be reached on Monday - Friday 9:00am-6:00pm w/ first Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ario Etienne can be reached on (571)272-4001. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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